DOCUMENT RESUME

ED 112 579 EC 073 773

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TITLE A Computer Based Simulation as an Alternative Teacher Training Strategy.
PUB DATE 75
NOTE 4p.; Paper presented at the Annual Meeting of the American Educational Research Association (Washington, D.C., March 30-April 3, 1975)

EDRS PRICE MF-$0.76 HC-$1.58 Plus Postage
DESCRIPTORS Class Management; *Computer Assisted Instruction; Exceptional Child Education; *Handicapped Children; *Simulation; Student Teachers; *Teacher Education; Teaching Methods

ABSTRACT

A computer based simulation program to provide teacher-trainees with practice in making pupil behavioral interventions has been developed using the cases of five hypothetical handicapped children. The trainee can choose to function in any of three modes: task or information sharing, intervention or control, or prevention aimed at keeping the pupil on-task. The simulation allows trainees to experience class management problems in a low-risk situation. (DB)

24.02
no abstract

A computer based simulation as an alternative teacher training strategy

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OBJECTIVES

The present study grew out of a need to develop a teacher-training system that would afford the teacher-trainee sufficient opportunity to practice making pupil behavioral interventions. In addition to providing skill practice, the system also needed to (1) have little or no risk for pupils; (2) provide little or no threat or face-losing risk for the teacher-trainee; and (3) provide opportunity for heuristic learning for the teacher-trainee. This would be achieved through trainee experimentation with varying responses to the same situation, so that there could be an increase in trainee confidence due to successful practice. The proposed system's no-risk dimension, for both trainee and pupil, strongly suggested a computer simulation for skill practice. Consequently the authors set out to design a computer simulation model that would afford a viable teacher training experience in managing the classroom behavior of handicapped children. Handicapped children were chosen primarily because of the experience of one of the authors with that type of student, as well as the association of the authors with the Center for Innovation in Teaching the Handicapped.

FRAMEWORK

There has been an inadequacy in the way the literature has dealt with descriptions of teacher management behavior: it has tended to focus on those behaviors by the teacher that occur when a student is off-task. Traditionally the focus has been on ways that teachers can control pupils' behavior to get them back on-task (E.G., IBMS II). Little if any attention has been given to those teacher behaviors that occur when students are on-task. Such teacher behavior tends to be collapsed into a place holder labelled "teacher on-task" behavior, or some similar description. In attempting to conceptualize an appropriate psychology of teacher behavior for the purpose of simulating classroom situations, the category of "teacher on-task" for all non-controlling efforts was not an adequate elaboration. Thus, an expansion of the teacher behavior model beyond its present dyad of task and control compor was necessary.

In elaborating the model, the teacher can function in any of three modes:

1) task -- information sharing mode -- including unilateral direction giving, induced participation or giving feedback
2) intervention -- controlling mode -- which includes a variety of strategies aimed at terminating pupil off-task behavior; and
3) prevention -- a teaching mode -- aimed at keeping the pupil on-task.

The teacher-pupil behavior taxonomies form the conceptual base for the classroom simulation game. The introduction of the prevention mode affords the game player an additional learning dimension. It enlarges the model from a strategic

set aimed at how to get the pupil back on task to one which can reward the teacher for keeping the pupil on task. This added dimension forces the player to be concerned with the effect of his behavior upon the pupil. If there is validity to the concept of the classroom as an interactive environment with both teacher and pupil as active participants, then the teacher must do more than dispense data and respond to pupil behavior. Thus, the supporting psychology for conceptualizing the teacher-pupil process must include the capability to provide for teacher behavior in relation to pupil on-task activity as well as to pupil off-task activity.

TECHNIQUES

Simulated by the computer are five somewhat stereotypical handicapped children. The computer program operates in a recursive fixed-time-interval mode so that the states of each of the five students at the end of each fixed time period are used to determine the states of the students during the next time period. Between each of the fixed time periods of the simulation (approximately 30 seconds) the computer model pauses in order to determine the player's responses for the next time period. These responses are limited to the taxonomy of responses provided by the program. The trainee (acting as the teacher of the five handicapped children) can attempt to modify the current states of the five students, but must do so on the basis of some set of priorities since the resources available to him for any particular time period are quite limited. Each response by the teacher (including the ignoring no-response) has a long term impact on the classroom as well as an immediate one. Consequently interventions by the teacher that may be appropriate in the immediate time frame for getting the pupil back on-task may be quite detrimental to the long term manageability of the classroom as well as negatively influencing the learning postures of the students.

In order to implement the simulation the authors constructed a new theoretical model of teacher/pupil interaction within the classroom. This model represents a marked move away from the present two-state model of on-task and off-task which has been applied to both the teacher's behavior and the pupil's behavior. An important feature of this model is that it accounts for the natural flow of pupil behavior which would occur if there were no teacher interventions. For the pupil's behavior the underlying theory is based on an eight-state model which elaborates six additional transitional states a pupil may assume in his natural or teacher-assisted movement between on-task and off-task states.

A teacher intervention can facilitate or redirect the natural flow of pupil behavior or, of course, it can have no impact at all on the natural flow. The efficacy of the intervention strategy is determined by the teacher's ability to identify correctly the pupil's present state, his previous state, and the "natural flow" future state. Teachers are able to select strategies from a wide variety of intervention taxonomies ranging from demanding techniques to empathetic supportive techniques.

EDUCATIONAL IMPORTANCE

The construction of the computer simulation has resulted in the development of an important new model of behavior management. The authors have made the training package portable for use on any large system that supports interactive users on a time shared basis by writing the programs in ANSI FORTRAN IV. The simulation can be likened to a classroom laboratory in that trainees can experiment with

many different strategies of classroom management without concern that they will adversely affect any real live pupils during the experimentation process. By using the simulation they will become familiar with the pedagogical model proposed by the authors.